

by the Examiner, because Aoyama fails to disclose all the elements of the claim, either explicitly or inherently.

The Examiner is reminded that in order to form a proper anticipation rejection under 35 U.S.C. § 102, the reference must disclose each and every element of the claimed invention. *See* M.P.E.P. § 2131; *Verdegaal Bros. v. Union Oil Co. of Cal.*, 814 F.2d 628, 631 (Fed. Cir. 1987); *Scripps Clinic & Res. Found. V. Genentech, Inc.*, 927 F.2d 1565, 1576 (Fed. Cir. 1991); *In re Schreiber*, 128 F.3d 1473, 1477 (Fed. Cir. 1997); *Glaxo Inc. v. Novopharm Ltd.*, 52 F.3d 1043, 1047 (Fed. Cir. 1995). Specifically, two conditions must be met as follows: (1) all the elements of the claim must be properly construed, and (2) all the elements of the claim, as properly construed, must be disclosed in the prior art reference either explicitly or inherently. *Elmer v. ICC Fabricating, Inc.*, 67 F.3d 1571, 1574 (Fed. Cir. 1995); *Schreiber*, 128 F.3d at 1477; *Glaxo*, 52 F.3d at 1047.

Claim 1 of the present invention recites that through holes pass from the principal surface and through the backside of the substrate. However, a hole disclosed in cited reference Aoyama does not pass through the backside of the substrate. Hence, the invention of Aoyama does not have the effect of high frequency shelter of the present invention.

For example, as shown in Fig. 2 of Aoyama, the main surface of a semiconductor substrate 11 is the interface between the semiconductor substrate 11 and 14A and 14B, respectively. Also, the backside is shown in Fig. 2 of Aoyama. The through holes 9 of the present invention are shown in Figs. 1(a)-(c) of the present invention.

In addition, in the portion of Aoyama asserted by the Examiner, no description can be found related to the through hole 9 as recited in the claim 1 of the present invention.

All of the elements of the claims are not disclosed by the prior art either explicitly or inherently; therefore, the prior art does not anticipate claims 1 and 4, and the rejection under § 102(b) should be withdrawn.

Claims 2, 3 and 5 are Patentable Over Aoyama and Wolf, Dawson or Schmitz

The Examiner has Not Made a *Prima Facie* Case of Obviousness

Claims 2, 3 and 5 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Aoyama et al., U.S. Patent No. 5,933,364 (Aoyama) in view of Wolf, Silicon Processing,

Volume 2, page 243, (Wolf), Dawson, U.S. Patent No. 6,133,628 (Dawson) or Schmitz et al., U.S. Patent No. 6,313,512 (Schmitz). The Applicants respectfully traverse the Examiner's rejection because the Examiner has not made a *prima facie* case of obviousness.

It should be noted that three criteria must be met to establish a *prima facie* case of obviousness. *M.P.E.P.* § 2143. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings to achieve the claimed invention. *Id.* Second, there must be a reasonable expectation of success. *In re Rhinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976). Third, the prior art must teach or suggest all the claim limitations. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974).

The Applicants respectfully contend that the Examiner has not set forth a *prima facie* case of obviousness. There is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify Aoyama and Wolf, Dawson or Schmitz or to combine reference teachings to achieve the claimed invention.

The Examiner concedes that Aoyama does not teach or disclose that a device with a gap between 2 adjacent through holes or vias should be smaller than the thickness of the substrate so the semiconductor structure will not easily fall apart and will keep the device to a minimum size; filling the sides of the through holes with a conductive material; and a device which is a power amplifying transistor for a radio frequency signal (pp. 3-4, Paper No. 3). The Examiner alleges that Wolf, Dawson and Schmitz teach these features of the invention. The Examiner states in the rejection that the alleged combination of Aoyama and Wolf, Dawson or Schmitz would "have been obvious to one with ordinary skill in the art at the time the invention was made," however, the Examiner gives no explanation or teaching from any of the references to indicate that one with ordinary skill in the art at the time of the invention would have had motivation to apply the specific teachings of Wolf, Dawson or Schmitz to the Aoyama device to achieve the structure recited in the claims of the present invention.

Even assuming motivation could be found, the Examiner has not given any indication that one with ordinary skill in the art at the time of the invention would have had a reasonable expectation of success when combining Aoyama and Wolf, Dawson or Schmitz.

Furthermore, the prior art does not teach or suggest all the elements of the claims, either explicitly or inherently. Please incorporate by reference the arguments *supra* with respect to the deficiencies of Aoyama. Aoyama does not disclose through holes which pass through the principal surface and through the backside of the substrate, and a structure similar to through hole 9 of the present invention. Either Wolf, Dawson or Schmitz does not cure the deficiencies in Aoyama.

The Applicants further contend that even assuming, *arguendo*, that the combination of Aoyama and Wolf, Dawson or Schmitz is proper, there is a lack of suggestion as to why a skilled artisan would use the proposed modifications to achieve the unobvious advantages first recognized by the Applicants. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680 (Fed. Cir. 1990).

For the reasons stated above, the Examiner has not set forth a *prima facie* case of obviousness; therefore, the Applicants respectfully request that the Examiner withdraw the § 103 rejections.

Conclusion

Having responded to all rejections set forth in the outstanding non-final Office Action, it is submitted that the claims are now in condition for allowance. An early and favorable Notice of Allowance is respectfully solicited. In the event that the Examiner is of the opinion that a brief telephone or personal interview will facilitate allowance of one or more of the above claims, the Examiner is courteously requested to contact Applicants' undersigned representative.

Respectfully submitted,



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